

Stated Briefly

An examination of the movement of educators within Minnesota



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This brief examines the mobility of public school teachers and principals (including assistant principals) in Minnesota and presents annual and five-year mobility rates between 2006/07 and 2010/11. An average of 9.5 percent of teachers changed schools between consecutive years, and 20.8 percent changed schools within a five-year span. Teachers were more likely to move to another school if they had less teaching experience, were in an urban school, or taught in a school with lower academic performance, fewer students, or more economically disadvantaged students. For principals the annual mobility rate averaged 10.5 percent, and the five-year mobility rate was 29.3 percent. Principals were more likely to move to another school if they had less experience or were in a school with lower academic performance or with more economically disadvantaged students. Principals' years of experience, as well as the percentage of students in the school who were academically proficient and the percentage who were economically disadvantaged, predicted their annual and five-year mobility rates.

This brief summarizes Minnesota-specific findings of Podgursky, M., Ehlert, M., Lindsay, J., & Wan, Y. (2016). *An examination of the movement of educators within and across three Midwest Region states*. (REL 2017-185). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. That report is available at <http://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=387>.



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Why this study?

Teachers and school administrators change schools for a variety of reasons. For example, public school teachers in a national sample rated personal life factors, salary and other job benefits, and assignment and classroom factors as the most important reasons in their decision to move (Goldring, Taie, & Riddles, 2014).

Some mobility is inevitable, even desirable, and can be beneficial to schools and students if it results in a better person–job match or replacement of ineffective educators by higher-quality educators (see, for example, Ingle, 2009); but policymakers are concerned about the potential negative effects of mobility. High rates of mobility pose substantial challenges to the development of strong and stable faculties (Allensworth, Ponisciak, & Mazzeo, 2009).

An educator's decision to leave a position in one school to take a position in another school incurs a cost to schools, districts, and students (Barnes, Crowe, & Schaefer, 2007; Feng & Sass, 2011; Coggshall & Sexton, 2008). At the state level, educator mobility may counteract initiatives to create equitable distributions of highly qualified educators across different types of districts. For example, research suggests that educators are more likely to move from schools with a larger racial/ethnic minority population, from schools with a larger population of economically disadvantaged students, and from schools showing chronic low performance (see, for example, Feng & Sass, 2011; Hanushek, Kain, & Rivkin, 2004; Plecki, Elfers, Loeb, Zahir, & Knapp, 2005). Previous research also suggests that teachers in some subject areas, particularly special education teachers, have higher mobility rates than teachers in other subject areas (Boe, Cook, & Sunderland, 2008; Goldring et al., 2014; Texas Education Agency, 1995).

Examining educator mobility may help states better understand where mobility is having its greatest impact. But many states do not monitor educator mobility. Such was the case in fall 2012, when members of the Midwest Educator Effectiveness Research Alliance¹ partnered with Regional Educational Laboratory Midwest to examine patterns of educator mobility within and among Iowa, Minnesota, and Wisconsin.

This brief presents findings on educator mobility within Minnesota. The study team analyzed Minnesota school staffing data from 2006/07 to 2011/12 to determine the mobility rates among public school teachers and principals (including assistant principals) and to determine whether educator and school characteristics and mobility rates were related. The study team also prepared similar briefs on Iowa and Wisconsin using the same methodology.²

The findings can provide policymakers and staff at the Minnesota Department of Education with information on educator mobility within the state as well as characteristics of schools that educators are more likely to leave and whether certain educators have characteristics that make them more prone to relocating.

What the study examined

This study addressed the following research question:

- What were intrastate mobility rates for teachers, principals, and assistant principals in Minnesota between 2006/07 and 2010/11?
- Did mobility rates differ by
 - Administrative level (teacher or principal)?
 - The subject area teachers taught?
 - Region within the state?

- Were mobility rates reliably predicted by
 - Educator characteristics (gender, racial/ethnic minority status, or years of experience working in public education in the state)?
 - School characteristics (academic performance, size, percentage of economically disadvantaged students, or urbanicity)?

The study team obtained annual educator staffing data and data on school-level performance and demographics from the Minnesota Department of Education. Staff records across years were linked by unique staff identification numbers. The longitudinal data permitted employment information for the same educators to be analyzed over a given period, which revealed mobility behavior (entry into the workforce, exit from the workforce, and changes in work locations). See box 1 for a summary of the data and methods used for the study.

Box 1. Data and methods

Data

This study used two types of data for school years 2006/07–2011/12:

- Listing of licensed staff in each public school in each year between 2006/07 and 2011/12.
- School-level data, including characteristics of the student populations served and student performance on state standardized tests.

Data were obtained through a data-sharing agreement between the Minnesota Department of Education and Regional Educational Laboratory Midwest. Educators' folder numbers (license numbers) and school identification numbers served as unique identifiers, allowing the study team to merge data files for different years by educator and school.

Methods

This brief focuses on the movement of two groups of educators within Minnesota: teachers and principals (including assistant principals). To examine educator mobility, the study team merged the state's public school employment files for each pair of consecutive years by educator identifier for all years between 2006/07 and 2011/12. A professional educator working in both years but in a different school within the state was classified as a mover and included in the count of school movers. Annual mobility rates were calculated by dividing the number of school movers by the total number of educators working in the first of the consecutive years. For example, the teacher mobility rate for 2006/07 was calculated by dividing the number of teachers working in 2006/07 who moved to another Minnesota public school in 2007/08 by the total number of teachers working in 2006/07. Five-year mobility rates were calculated by dividing the number of educators working in 2006/07 who were still employed in the state's public schools in 2011/12 (after five years) but were working in a different school by the total number of educators employed in 2006/07.

To determine whether specific educator and school characteristics were associated with whether an educator moved from year to year or was working in a different school at the end of the five-year span, the study team used multivariate logistic regressions to analyze annual and five-year mobility rates. The results of the regressions indicated how educator characteristics and the characteristics of the exited schools (the schools educators moved from) were related to the odds that educators continuing their employment would change schools rather than stay employed in the same school.

What the study found

The average annual intrastate mobility rate was 9.2 percent for Minnesota teachers and 10.5 percent for Minnesota principals (table 1). Mobility rates were related to several educator and school characteristics.

Between 2006/07 and 2010/11 the annual intrastate mobility rate for teachers ranged from 8.4 percent to 9.8 percent, and the five-year mobility rate was 20.8 percent

The annual intrastate mobility rate for Minnesota teachers ranged from 8.4 percent to 9.8 percent (figure 1). Of the teachers who were employed in Minnesota public schools in 2006/07, 20.8 percent had changed schools within the state by 2011/12.

Table 1. Average annual and five-year intrastate mobility rates for Minnesota public school educators, 2006/07–2010/11 (percent)

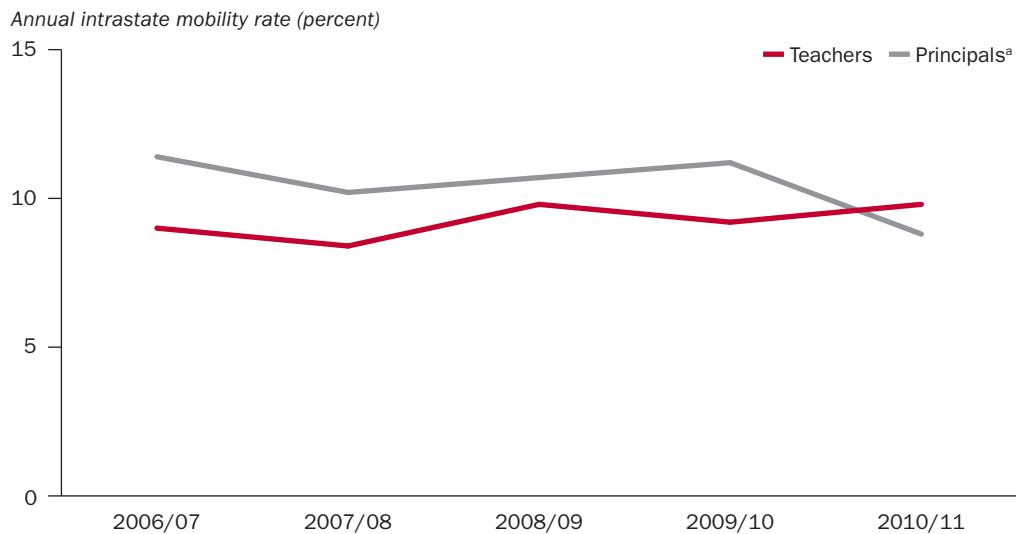
Mobility rate	Teachers	Principals ^a
Average annual	9.2	10.5
Five-year	20.8	29.3

Note: Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of educators between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of educators employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of educators employed in 2006/07 who worked in a different school in 2011/12.

a. Includes assistant principals.

Source: Authors' analysis of data from the Minnesota Department of Education.

Figure 1. The annual intrastate mobility rate for Minnesota public school educators ranged from 8.4 percent to 11.4 percent between 2006/07 and 2010/11



Note: The mobility rate displayed for each year reflects the movement of educators between that year and the subsequent year. For example, the rate for 2006/07 reflects the percentage of educators employed in 2006/07 who worked in a different school in 2007/08.

a. Includes assistant principals.

Source: Authors' analysis of data from the Minnesota Department of Education.

Teacher mobility was related to teachers' years of experience and licensure area

As teachers advanced in their career, the likelihood of moving to another public school in Minnesota decreased (table 2 and figure 2). The difference in intrastate mobility rates for teachers in different subject areas was also statistically significant ($p < .01$). Among elementary school teachers the average annual mobility rate was 8.0 percentage points higher for special education teachers than for general education teachers, and the five-year mobility rate was 11.6 percentage points higher for special education teachers than for general elementary education teachers (table 3). Among secondary school teachers the average annual mobility rate was 5.3 percentage points higher for special education teachers than for teachers in core subjects, and the five-year mobility rate was 12.1 percentage points higher for special education teachers than for teachers of core subjects. Foreign language teachers at the secondary level also had high mobility rates: the average annual rate was 13.5 percent, and the five-year rate was 26.4 percent.

The likelihood of teachers changing schools within Minnesota during a one- or five-year span was related to schools' academic performance, size, urbanicity, and percentage of students who are economically disadvantaged

Teachers were more likely to move from schools with a lower percentage of students meeting the state's academic proficiency standards, smaller schools, urban schools, and schools with a larger percentage of students who were economically disadvantaged (see table 2 and figure 2). All these relationships were statistically significant.

Average annual and five-year teacher intrastate mobility rates were highest in the Arrowhead and Metro regions

Teachers in some of the state's economic development regions were more likely to change schools than were teachers in other regions ($p < .001$, with an average annual mobility rate of more than 10.0 percent

Table 2. Relationships between annual and five-year intrastate mobility rates for Minnesota public school educators and educator and school characteristics, 2006/07–2010/11 (odds ratio)

Predictor	Teachers		Principals ^a	
	Annual mobility rate	Five year mobility rate	Annual mobility rate	Five year mobility rate
Educator characteristics				
Years of experience teaching in Minnesota	0.949***	0.959***	0.967***	0.959***
School characteristics				
Academic performance (percent proficient)	0.995***	0.994***	0.988**	0.990***
Size (per 100 students)	0.981***	0.969***	1.000	0.996
Urban versus nonurban	1.352***	1.417***	1.124	1.005
Percentage of economically disadvantaged students	1.006***	1.008***	1.013**	1.018***

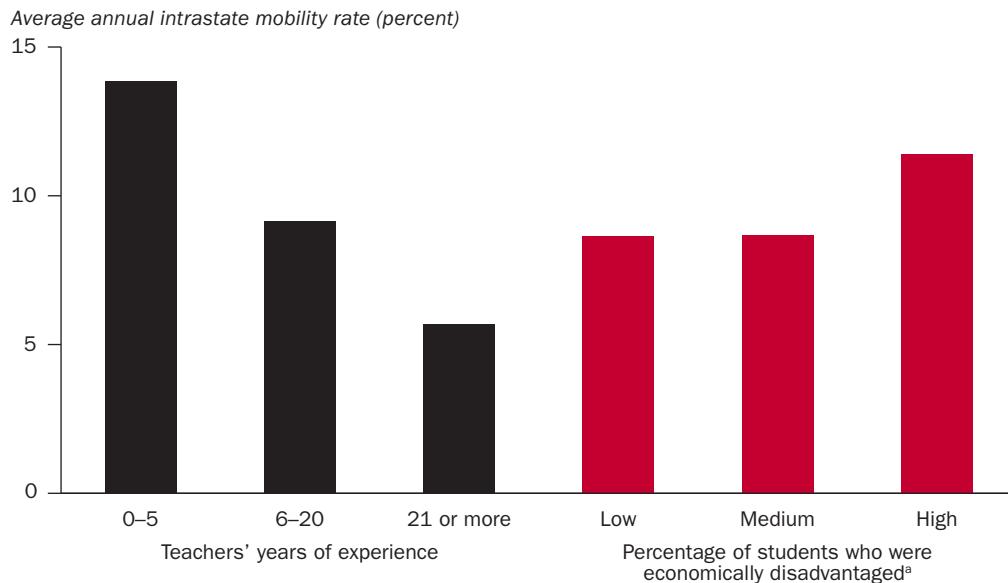
** Significant at $p < .01$; *** significant at $p < .001$.

Note: Estimates are based on a multivariate logit model and indicate how each predictor variable is related to the odds that an educator moves versus stays at the same school in the following year. Values greater than 1 indicate that increases in the predictor variable are associated with higher odds that an educator changes schools. Values less than 1 indicate that increases in the predictor variable are associated with lower odds. For example, the odds of moving versus staying in the same school between two consecutive years are 1.352 times higher for an urban teacher than for a nonurban teacher. The analysis of annual mobility used data for 2009/10 and 2010/11; the analysis of five-year mobility used data for 2006/07 and 2011/12.

a. Includes assistant principals.

Source: Authors' analysis of data from the Minnesota Department of Education.

Figure 2. Average annual intrastate mobility rates for Minnesota public school teachers were associated with teachers' years of experience in the state and schools' percentage of students who were economically disadvantaged, 2006/07–2010/11



a. Low-poverty schools are those in the lowest quartile of percentage of students eligible for the school lunch program; medium-poverty schools are those in the middle two quartiles of percentage of students eligible for the school lunch program; high-poverty schools are those in the highest quartile of percentage of students eligible for the school lunch program.

Source: Authors' analysis of data from the Minnesota Department of Education.

Table 3. Average annual and five-year intrastate mobility rates for Minnesota public school teachers, by subject taught, 2006/07–2010/11 (percent)

Subject taught	Average annual mobility rate	Five year mobility rate
Elementary school level		
General education	6.6	18.0
Special education	14.8	29.6
Other	11.4	21.2
Secondary school level		
English language arts	8.1	16.3
Math	8.0	17.4
Science	7.0	15.1
Social studies	6.1	15.1
Special education	12.7	28.1
Foreign languages	13.5	26.4
Other	10.1	21.5

Note: Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of teachers between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of teachers employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of teachers employed in 2006/07 who worked in a different school in 2011/12. Analyses of variance showed that the overall differences in annual and five-year mobility rates between teachers who taught different subjects were statistically significant at $p < .01$.

Source: Authors' analysis of data from the Minnesota Department of Education.

and a five-year mobility rate of 22 percent in the Arrowhead and Metro regions (table 4). Mobility rates tended to be higher within regions than across them (see shaded cells in table 4).

Between 2006/07 and 2010/11 the annual intrastate mobility rate for principals ranged from 9.8 percent to 11.4 percent, and the five-year mobility rate was 29.3 percent

The annual intrastate mobility rate for Minnesota principals ranged from 9.8 percent to 11.4 percent (see figure 1). Of the principals who were employed in Minnesota public schools in 2006/07, 29.3 had changed

Table 4. Teacher annual and five-year mobility rates across economic development regions within Minnesota, 2006/07–2010/11 (percent)

Region that teachers leave	Region to which teachers move												Total mobility from region***	
	Arrow head	Central	East Central	Head waters	Metro	North Central	North west	South Central	South east	South west	South west Central	Upper MN Valley	West Central	
Arrowhead	10.6	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	11.4
	20.7	0.1	0.3	0.2	0.6	0.2	0.1	0.0	0.2	a	0.0	0.0	0.1	22.7
Central	0.0	6.0	0.1	0.0	0.7	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1	7.5
	0.2	14.2	0.3	0.1	1.2	0.6	0.1	0.1	0.2	0.1	0.2	0.1	0.2	17.7
East Central	0.3	0.6	4.7	0.0	0.7	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	6.9
Headwaters	0.3	0.1	0.1	4.1	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.1	5.4
Metro	0.0	0.2	0.1	0.0	9.8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	10.3
	0.1	0.3	0.1	0.0	21.6	0.1	0.0	0.1	0.3	0.1	0.1	0.0	0.1	22.9
North Central	0.2	0.2	0.1	0.3	0.3	4.8	0.1	0.0	0.1	0.0	0.0	0.0	0.4	6.6
	0.8	0.3	0.2	1.0	0.7	11.7	0.3	0.1	0.2	0.1	0.1	0.1	0.9	16.5
Northwest	0.2	0.1	0.0	0.2	0.1	0.0	4.9	0.0	0.1	0.0	0.0	0.0	0.2	5.9
	0.3	0.1	a	0.6	0.1	a	11.9	0.1	a	a	a	0.1	0.4	13.4
South Central	0.1	0.1	0.1	0.0	0.5	0.0	a	7.1	0.4	0.2	0.1	0.0	0.1	8.7
	0.1	0.2	0.1	0.1	1.4	0.2	0.1	15.2	1.0	0.5	0.1	0.1	0.1	19.1
Southeast	0.1	0.1	0.1	0.0	0.6	0.0	0.0	0.2	6.8	0.0	0.0	0.0	0.0	7.9
	0.1	0.2	0.1	0.0	1.3	0.1	0.1	0.3	16.4	0.1	0.1	a	0.1	18.9
Southwest	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.3	0.2	6.0	0.2	0.1	0.1	7.6
	0.2	0.4	0.1	0.1	0.9	0.1	0.3	0.8	0.8	13.0	0.4	0.5	0.3	17.8
Southwest Central	0.1	0.6	0.0	0.0	0.3	0.0	0.1	0.1	0.1	0.1	5.5	0.2	0.1	7.3
	0.1	1.3	0.2	0.1	0.9	a	a	0.2	0.3	0.5	13.5	0.3	0.7	18.2
Upper MN Valley	0.0	0.2	0.1	a	a	0.0	0.1	0.1	0.2	0.5	0.2	5.7	0.2	7.4
	a	0.7	a	a	0.2	0.3	0.2	0.3	0.5	1.0	0.9	12.5	0.3	17.2
West Central	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.0	0.1	5.7	6.9
	0.1	0.4	0.1	0.1	0.7	0.6	0.3	0.1	0.1	0.1	0.1	0.1	13.0	15.8

*** Significantly different across regions at $p < .001$ for both annual mobility rates and five-year mobility rates.

Note: In each row the top number is the average annual mobility rate, and the bottom number is the five-year mobility rate. Shaded cells along the diagonal indicate the percentage of teachers within the region who relocated to another school within the region. Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of teachers between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of teachers employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of teachers employed in 2006/07 who worked in a different school in 2011/12.

a. No teachers moved from the region representing the row to the region representing the column.

Source: Authors' analysis of data from the Minnesota Department of Education.

schools within the state by 2011/12. Principal mobility rates were 2.7–4.5 percentage points higher than teacher mobility rates.

Principal intrastate mobility rates were related to principals' years of experience as well as school academic performance and percentage of students who were economically disadvantaged

Principals' years of experience were negatively related to the likelihood of changing schools (see table 2). For every year of experience, the odds of changing schools within a five-year span decreased 4 percent. Principals were also more likely to move from a school with a low rate of academic proficiency and from a school with a high percentage of students who were economically disadvantaged. The relationships were statistically significant for both annual and five-year mobility rates.

Table 5. Principal average annual and five-year mobility rates across state economic development regions within Minnesota, 2006/07–2010/11 (percent)

Region that principals ^a leave	Region to which principals move												Total mobility from region	
	Arrow head	Central	East Central	Head waters	Metro	North Central	North west	South Central	South east	South west	South west Central	Upper MN Valley	West Central	
Arrowhead	8.7	0.4	b	0.4	b	b	0.2	0.4	b	0.2	b	b	b	10.4
	28.4	b	b	0.9	b	b	b	0.9	b	b	b	b	b	30.3
Central	b	7.5	0.1	b	1.0	0.1	b	0.1	0.1	b	b	b	0.6	9.5
	b	23.7	b	b	3.6	b	b	0.7	b	b	b	b	1.4	29.5
East	b	1.5	4.1	0.4	1.5	b	b	b	0.8	b	b	b	b	8.3
Central	b	3.8	7.6	b	9.4	b	b	b	b	b	b	b	b	20.8
Headwaters	b	b	b	9.6	b	1.1	b	b	b	b	b	b	b	11.3
	b	b	b	18.9	b	b	2.7	b	2.7	b	b	b	2.7	29.7
Metro	b	0.2	0.0	0.0	10.6	0.1	b	b	0.1	b	b	b	b	11.1
	b	0.3	0.1	b	28.4	0.2	b	b	0.2	b	b	b	b	29.4
North Central	b	b	b	0.8	b	6.2	0.4	b	0.4	b	0.4	b	0.4	8.5
	b	b	b	b	b	27.6	b	b	3.5	b	1.7	b	b	32.8
Northwest	0.5	0.5	b	1.0	b	b	7.6	b	0.5	b	b	b	0.5	10.4
	b	b	b	2.2	b	b	19.6	b	b	b	b	b	2.2	23.9
South Central	0.3	0.3	b	b	1.1	b	b	6.0	1.1	0.3	0.6	b	b	9.6
	1.4	b	b	1.4	1.4	b	b	20.8	1.4	b	1.4	b	b	27.8
Southeast	b	b	b	b	0.9	0.3	0.1	b	7.1	0.1	0.1	b	b	8.6
	b	0.6	b	b	1.9	0.6	0.6	b	23.6	b	b	b	b	27.3
Southwest	0.4	b	b	b	0.4	b	0.4	b	1.6	7.5	0.4	b	b	11.1
	4.4	b	b	b	b	b	2.2	b	4.4	21.7	b	b	b	32.6
Southwest Central	b	2.3	b	b	2.3	b	0.6	0.6	0.6	b	5.7	b	b	11.9
	b	5.4	b	b	2.7	b	b	2.7	b	b	18.9	b	b	29.7
Upper MN Valley	2.0	b	b	b	b	b	b	1.0	b	b	b	7.8	b	11.8
	5.0	b	b	b	b	b	b	b	b	b	b	30.0	b	40.0
West Central	0.6	0.3	0.3	b	0.6	0.9	0.3	0.3	b	b	b	b	5.9	9.3
	b	1.5	1.5	b	3.0	b	1.5	1.5	b	b	b	b	19.7	30.3

Note: In each row the top number is the average annual mobility rate, and the bottom number is the five-year mobility rate. Shaded cells along the diagonal indicate the percentage of principals within the region who relocated to another school within the region. Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of principals between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of principals employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of principals employed in 2006/07 who worked in a different school in 2011/12.

a. Includes assistant principals.

b. No principals moved from the region representing the row to the region representing the column.

Source: Authors' analysis of data from the Minnesota Department of Education.

Average annual and five-year principal intrastate mobility rates were similar across Minnesota's economic development regions

The differences in principal intrastate mobility rates across regions were not statistically significant (table 5). As with teacher mobility, most principal mobility involved moving to another school within the same region (as indicated by the shaded cells in table 5).

Implications of the study findings

The findings from these analyses have implications for Minnesota policymakers, the Minnesota Department of Education, and districts statewide.

The mobility rates presented here can serve as a baseline for future studies of mobility among Minnesota educators

The annual educator mobility rate in Minnesota ranged from 8.4 percent to 11.5 percent between 2006/07 and 2010/11. But no objective standards exist for determining whether these mobility rates merit concern among policymakers. Nonetheless, the mobility rates in this brief can be useful to Minnesota policymakers in two ways: they help show patterns of mobility in schools in different regions of the state and in different types of schools, and they can serve as baseline rates for future studies. Although some educator mobility is to be expected given personal life events and individual workplace and community preferences, policymakers may want to continually monitor these rates. Increases either statewide or in individual districts may indicate that districts will have to spend additional funds for recruiting, interviewing, and hiring educators; that districts experiencing inordinate loss of staff because of mobility issues may be challenged to sustain school improvement efforts; and that the state's efforts at equitable distribution of educators may be experiencing challenges.

Public schools serving challenged student populations are more likely to lose teachers to other schools

Educators' self-selection of employers may be leading to an inequitable distribution of educators. Mobility rates were higher for special education teachers than for teachers in other subject areas. Teacher mobility was also related to schools' academic performance, size, percentage of students who were economically disadvantaged, and urbanicity. That is, teachers were moving from more challenging schools at higher rates than they were moving from less challenging schools. Not only do schools serving challenged student populations lose more resources to the process of hiring replacement teachers, but research suggests that student learning suffers as well (Ronfeldt, Loeb, & Wyckoff, 2013). Thus policymakers may need to consider ways of incentivizing the retention of special education teachers and teachers in low-performing, high-poverty urban schools and to decide whether to assist the districts that oversee these schools with the costs of hiring educators to replace the movers.

Educator mobility is of greater concern in some regions of the state than in others

Teacher and principal mobility rates were higher in some regions than in others. Specifically, the five-year teacher mobility rates were higher in the Arrowhead and Metro regions than in other regions. The differences in mobility rates across regions were statistically significant. The Minnesota Department of Education may want to take a more in-depth look at the mobility rates in those regions to determine whether initiatives are needed to bolster educator retention there.

Limitations of the study

The findings from this study were produced by accepted statistical methods using valid and reliable staffing and certification data provided by the Minnesota Department of Education. Despite the strengths of this study, it has two main limitations.

First, the study focuses on the mobility patterns among educators in Minnesota public schools only. Mobility rates and patterns cannot be generalized to other states or to private schools in Minnesota.

Second, the study is correlational. The findings show patterns of relationships between educator mobility and educator and school characteristics. However, the relationships are not necessarily causal. The administrative employment data used for the study did not include information on why educators moved or whether educators' decisions to change places of employment were voluntary or involuntary.

Notes

1. The Midwest Educator Effectiveness Research Alliance comprises representatives of state education agencies in Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin whose work involves licensing educators and supporting educators' development throughout their careers.
2. The two other briefs, together with the full report on which the state-specific briefs are based, are available at <http://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=387>. The full report also includes analysis of teacher and administrator interstate mobility among the three states.

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